

PROCEEDINGS
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FIVE NEW PLANTS FROM NEW MEXICO.

BY PAUL C. STANDLEY.

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During the summer of 1912 only a few plants were collected in New Mexico, at least so far as is known to the writer. Prof. T. D. A. Cockerell has forwarded a small collection from the region about Santa Fe, in which there is an apparently undescribed species of *Nuttallia*. Mr. E. O. Wooton gathered a few specimens in the San Andreas Mountains in Dona Ana County, two of which, a *Chrysothamnus* and an *Amelanchier*, seem to be new. More careful examination of the southwestern specimens of *Amsonia* in the U. S. National Herbarium, at the suggestion of Dr. P. A. Rydberg, reveals two new species of this group, both of which occur in New Mexico, besides extending to adjacent States. Descriptions of these five species are published herewith.

***Nuttallia springeri* Standley sp. nov.**

Stems slender, with numerous divaricate branches, white, scabrous-puberulent, glabrate in age; cauline leaves (basal ones not seen) small, 20 to 35 mm. long, sessile, bright green, scabrous-hirtellous, linear, the uppermost entire, the lower remotely dentate or lacinate-dentate, the teeth or lobes divaricate; flowers numerous, solitary at the ends of the branches, or rarely axillary, naked or subtended by 1 or 2 leaf-like bracts; hypanthium about 6 mm. long, the calyx lobes of about the same length, linear-triangular, long-attenuate, spreading or reflexed, scabrous-hirtellous; petals 12 to 15 mm. long, spatulate, obtuse, bright yellow, narrowed into a long claw, accompanied by usually 5 petal-like staminodia; stamens numerous, the filaments slender; capsules cylindric, 8 to 10 mm. long, scabrous; seeds flattened, 1.75 mm. in diameter or less, narrowly winged or only margined, pale brownish.

Type in the U. S. National Herbarium, No. 661,103, collected on the

mesa above the Abbott Ranch, Rito de los Frijoles, northwest of Santa Fe, New Mexico, in August, 1912, by Mr. Frank Springer (No. 4).

This proposed new species is related to *N. multicaulis* and *N. multiflora*, but in most of its dimensions it is smaller than either. *Nuttallia multiflora*, particularly, has much larger flowers, as well as broad and more dissected leaves. The seeds, too, are unlike those of the two species mentioned.

The specimens were forwarded by Prof. T. D. A. Cockerell. At his request, the species has been named in honor of its collector, Mr. Frank Springer, who is well known for his contributions to the science of paleontology.

***Amelanchier australis* Standley sp. nov.**

Slender shrub 2 meters high or less with ascending branches; older twigs glabrous, brown or grayish brown, the younger ones tomentose or villous with white hairs; buds ovoid, more or less villous; leaf blades thick and coriaceous, ovate-oblong or rounded-oblong, 20 to 32 mm. long, 14 to 25 mm. broad, rounded to nearly truncate at the apex or sometimes acutish, broadly rounded or truncate at the base, pale dull green, villous on the upper surface with mostly appressed hairs, more densely villous or tomentose beneath, coarsely crenate-serrate above the middle, the teeth abruptly short-pointed; petioles slender, 5 to 7 mm. long, villous or tomentose; stipules 6 to 10 mm. long, subulate, reddish brown, villous, soon deciduous; racemes terminal, slender, sometimes somewhat panicleate, each with 6 to 15 flowers; pedicels slender, erect, 5 to 15 mm. long, densely villous with mostly appressed hairs; hypanthium in anthesis campanulate, bright green, sparingly villous; calyx lobes bright green, lanceolate to narrowly elliptic or linear-lanceolate, 4 to 5 mm. long, acute, villous on both surfaces, after anthesis reflexed or spreading and accrescent, equaling or exceeding the fruit; petals narrowly oblong or elliptic-oblong, narrowed at the base, obtuse, 5 to 6 mm. long; mature fruit not seen, the best developed immature ones spherical, slightly villous, 5 to 6 mm. in diameter.

Type in the U. S. National Herbarium, No. 661,083, collected at Ropes Spring in the San Andreas Mountains, Dona Ana County, New Mexico, September 23, 1912, by E. O. Wooton.

This is as closely related to *Amelanchier oreophila* A. Nels. as to any New Mexican species. That, however, so far as now known, reaches only the mountains of the northern part of the State, occurring in the Transition Zone. The locality for *A. australis* is in the Upper Sonoran Zone. *Amelanchier oreophila* differs from this shrub of southern New Mexico in its thinner, bright green leaves, fewer flowers, and less abundant pubescence. The new species here described is best distinguished by its bright green, foliaceous calyx lobes, which are unlike those of any other North American species.

Amsonia arenaria Standley sp. nov.

Perennial from a thickened woody root; stems stout, erect, 14 to 50 cm. high, much branched above the base, the branches ascending or spreading, tomentose with branched white hairs; leaves numerous, linear, or the lowest rarely lance-linear, 20 to 55 mm. long, 3 mm. wide or less, acutish, sessile, thick and somewhat fleshy, 1-nerved, abundantly tomentose when young, glabrate in age; flowers numerous, in rather dense clusters, these shorter than the leaves; pedicels 4 mm. long or less, some of the flowers usually sessile; calyx 5 to 7 mm. long, tomentose, soon becoming glabrate, the lobes lanceolate, with long subulate tips; corolla salverform, the tube 8 to 10 mm. long, dilated upward, constricted at the mouth, glabrous outside, pubescent within, the lobes of the limb oblong or oblong-obovate, 8 mm. long, obtuse, spreading; stigma spherical, with two rounded lobes above; follicles stout, 4 to 9 cm. long, constricted between the seeds, attenuate at the apex, sessile, tomentulose when young, glabrate in age, 1 to 3-seeded; seeds 8 to 23 mm. long, elliptic or narrowly oblong in outline, obtuse or truncate at the ends, pale brown.

Type in the U. S. National Herbarium, No. 61,049, collected on sandhills between Strauss and Anapra, near the southeast corner of Dona Ana County, New Mexico, in July, 1912, by Elmer Stearns (No. 372). The locality is near El Paso, Texas, on the west side of the Rio Grande.

The type specimens bear fruit only, and the description of the flowers is based upon Pringle's 6796 and part of the Mexican Boundary Survey's No. 1053, cited below.

Amsonia arenaria is nearest *A. tomentosa* Torr., and some of the material referred here was determined as that species by Gray and Torrey. The two occupy entirely different ranges, *A. tomentosa* being known only from northern Arizona, southern Utah, Nevada, and southern California. The latter has lanceolate to ovate leaves which are permanently tomentose and give the plant a whitish appearance that is characteristic even in age. *Amsonia arenaria* is somewhat grayish when young, but soon loses most of its pubescence and appears a dull dark green.

Additional specimens examined:

New Mexico: On sandhills, San Andreas Mountains, Dona Ana County, September 23, 1912, Wootton.

Chihuahua: Between Laguna de Guzman and Laguna de Santa Maria, 1891, Hartman 724; gravelly plains near Lake Guzman, alt. 1200 meters, 1898, Pringle 6796.

Without definite locality: Mexican Boundary Survey 1053, in part.

Upon the National Herbarium sheet of No. 1053 collected by the Mexican Boundary Survey are three branches, each representing a different species. One is *Amsonia arenaria*, another is *A. hirtella*, and the third represents an apparently undescribed species. This last is perfectly glabrous and resembles *A. longiflora*, but the flowers are much smaller than in that species. It is probably the plant from Lake Santa Maria, Chihuahua, referred to by Torrey* as a glabrous form of *A. tomentosa*.

* U. S. and Mex. Bound. Bot. 158. 1859.

Amsonia hirtella Standley sp. nov.

Perennial from a somewhat woody root; stems stout, erect, 50 cm. high, with rather few erect or ascending branches above the middle, abundantly hirtellous; leaves narrowly lance-linear, 30 to 45 mm. long, 2 to 5 mm. wide, acute, attenuate to a petiole-like base, abundantly hirtellous, especially on the margins and veins; flowers numerous, in dense terminal or lateral clusters, usually exceeding the leaves; pedicels short, 2 mm. long or less, densely hirtellous; calyx 5 to 6 mm. long, glabrous or nearly so except for the long linear hirsute tips of the linear-lanceolate lobes; corolla tube about 14 mm. long, dilated upward, constricted at the mouth, villous within; corolla lobes oblong or oblong-oval, 5 to 6 mm. long, obtuse.

Type in the U. S. National Herbarium No. 691,857, collected in canyons near the Upper Corner Monument, southern Grant County, New Mexico, May 1, 1892, by Dr. E. A. Mearns (No. 117).

This plant seems to be most closely related to *Amsonia longiflora* Torr. That species is glabrous throughout and has flowers nearly three times as large.

The writer would refer here provisionally the following specimens:

Chihuahua: Candelaria, 1911, *Stearns* 228.

Texas: Bofecillos, May 18, 1881, *Havard*.

Without definite locality: *Mexican Boundary Survey* 1053, in part.

These last three specimens all have young or mature fruit and no flowers. The fruit is slenderly cylindric, continuous, with no constrictions between the seeds, glabrous, 8 cm. long or less. The pubescence of the leaves and stems is similar to that found in the type of *A. hirtella*, but it is more abundant and is scattered all over both surfaces of the leaves. The calyx, too, is densely hirtellous throughout. When the corollas of this form are seen, it may be found that the plant from farther east and south is really a different species.

Chrysothamnus elatior Standley sp. nov.

Slender shrub 1 meter high or less; older branches whitish, striate, puberulous or glabrate, erect; leaves numerous, erect or ascending, linear, 20 to 25 mm. long, 2 mm. wide or less, acutish, sharp-pointed, narrowed at the base, the uppermost narrower, shorter, and with more or less involute margins, all thick, rigid, finely and densely puberulous with white hairs; inflorescence rather densely corymbose, composed of few to many heads; peduncles ascending, 5 to 13 mm. long, puberulous, furnished with short bract-like leaves; involucre narrow, 9 to 12 mm. high, 5-angled by the pentastichous bracts; these in 5 or 6 series, the outer successively shorter, the outermost oblong-lanceolate and acute, the inner linear-oblong, abruptly acuminate to a slender tip, all somewhat coriaceous, pale, with short green tips; flowers usually 5; corolla slender, 12 mm. long, glabrous; achenes glabrous, 6 or 7 mm. long, 5-angled, with a prominent nerve on each face; pappus yellowish white, rigid, about 14 mm. long.

Type in the U. S. National Herbarium, No. 661,098, collected on sand-hills north of Goldenbergs Ranch, San Andreas Mountains, Dona Ana County, New Mexico, October 12, 1912, by E. O. Wooton.

This belongs to a group of which three other species occur in New Mexico, *Chrysothamnus pulchellus* (A. Gray) Greene, *C. depressus* Nutt., and *C. baileyi* Wooton & Standley. All of these are much lower plants than our new species, seldom exceeding a height of 30 cm. *C. depressus* is found only in the northern part of the State. It has broad leaves which are merely scaberulous, and thin, long-acuminate bracts. *Chrysothamnus pulchellus* and *C. baileyi*, both of which grow in eastern and southern New Mexico, have glabrous leaves and broader, more obtuse bracts.